

ABSTRACT OF THE DISCLOSURE

Disclosed is a differential charge pump and a method for pumping the same, and a phase locked loop using the pump and a method for phase locked looping. The differential charge pump comprises a first driver for receiving a first input signal and generating a first output signal; a second driver for receiving a second input signal and generating a second output signal; a third driver for receiving an inverted signal of the second input signal and generating a third output signal having the same voltage level with the first output signal; a fourth driver for receiving an inverted signal of the first input signal and generating a fourth output signal having the same voltage level with the second output signal; a first transistor having a gate connected to a first bias voltage, a source to which the first output signal is applied, and a drain connected to an output signal of a first differential charge pump; a second transistor having a gate connected to the first bias voltage, a source to which the second output signal is applied, and a drain connected to an output signal of a second differential charge pump; a third transistor having a gate connected to the second bias voltage, a source to which the third output signal is applied, and a drain connected to an output signal of the first differential charge pump; and a fourth transistor having a gate connected to a second bias voltage, a source to which the fourth output signal is applied, and a drain connected to the output signal of the second differential charge pump. Therefore, the switching noise occurring on the transition of the input signals are reduced and the performance of the system is enhanced.